

### Abstract

A system for reducing the temperature of exhaust gas in an incinerator or boiler equipment having an exceedingly small size and avoiding any difficulties caused by damage to the wall surface of a gas cooling chamber due to adherence of sprayed water droplets and deposition of dust. More specifically, pressurized thermal water with a temperature higher than a boiling point of water under atmospheric pressure is sprayed as temperature reduction water into high temperature exhaust gas Gh in a gas cooling chamber or an exhaust gas duct. The temperature reduction of exhaust gas and the removal of acidic gas in the exhaust gas are simultaneously achieved by spraying pressurized thermal water Wt containing an alkaline solution as temperature reduction water into high temperature exhaust gas Gh in the gas cooling chamber or the exhaust gas duct.